

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 2785-015--Michigan
Sanford Project

Project No. 10808-005--Michigan
Edenville Project

Project No. 10809-004--Michigan
Secord Project

Project No. 10810-006--Michigan
Smallwood Project
Boyce Hydro Power, LLC.

July 16, 2013

Mr. Frank Christie, P.E.
Boyce Hydro Power, LLC.
6000 S. M-30 (P.O. Box 15)
Edenville, MI 49624

RE: Proposal for 2013 Water Quality Monitoring Program

Dear Mr. Christie:

This letter acknowledges receipt of your proposal for improving your water quality monitoring methods, filed on May 20, 2013, for the Sanford, Edenville, Smallwood, and Secord projects, located on the Tittabawassee River in Michigan. The proposal was filed in response to the Federal Energy Regulatory Commission's (Commission) April 23, 2013, letter requesting additional information to ensure you comply with the approved water quality monitoring plan (plan)¹ for the projects.

¹ Order Modifying and Approving Water Quality Monitoring Plans. 87 FERC ¶ 62,365 (issued June 29, 1999).

Background

The plan requires you to monitor water temperature and dissolved oxygen (DO) levels below each project, at the confluence of the tailrace and the bypassed reach. Temperature is to be monitored year-round and DO is to be monitored from June 1 through September 30; both parameters are to be recorded on an hourly basis. The license of each project describes the criteria for monthly average temperatures and the DO concentrations for the Tittabawassee River, and states that you must implement all reasonable and prudent measures to ensure that the water quality standards are met whenever inflows to the projects are greater than or equal to the 95 percent exceedence inflow.²

The monitoring devices are to be connected to the project SCADA system to alert the projects' operators any time the DO falls below the 5 milligrams per liter (mg/l) criteria. If low DO concentrations should occur below any of the projects, the plan states that you are to measure DO just upstream or the influence of the project to determine the cause of the low DO. Further, the plan describes the corrective measures to be taken if the DO or temperature criteria are violated. Each of the pertinent license articles state that you are to file monitoring results with the U.S. Fish and Wildlife Service (FWS) and Michigan Department of Natural Resources (MDNR) prior to filing the report with the Commission. The plan establishes the filing date as December 31 annually.

Following a decade in which water quality monitoring was not performed at the projects, you provided the Commission with a water quality monitoring report in 2012. The Commission determined that the report was insufficient. By letter dated April 23, 2013, we requested that you provide the following information: (1) the actions you have taken (with dates) to connect monitoring devices to the SCADA system and install alarms; (2) the mitigating actions you will perform in response to any DO or water temperature data failing to meet the required criteria; (3) descriptions of the specific steps you have taken or will be taking to ensure a reliable record of water quality data (such as deploying improved instrumentation or providing more frequent maintenance); and (4) whether you are currently monitoring water temperature year-round and when you began implementing the requirement.

Equipment Upgrades and Water Quality Monitoring

According to your filing, you propose to deploy upgraded monitoring instruments for temperature and DO at each project site. The upgraded instruments include an

² License Article 407 for the Sanford Project (41 FERC ¶ 62,192), and License Article 402 for the Edenville (85 FERC ¶ 61,063), Secord (85 FERC ¶ 61,064), and Smallwood (85 FERC ¶ 61,065) projects.

optical-type DO sensor to provide increased reliability and accuracy. Further, you will improve the installation of the instruments so that they are horizontally oriented and parallel to the current, in open-ended steel pipes anchored to a section of I-beam along the river bottom, rather than using the vertical standpipes previously employed. This will permit flow through the open-end pipes and over the sensors, and will prevent the accumulation of fine sediments that could compromise data collection. The equipment will be installed approximately 0.5 foot above the river bottom, approximately 200 to 250 feet downstream of each project's tailrace, and 50 to 100 feet from the shore. The instruments will be continuously connected to a data cable that will terminate onshore in a weatherproof box; the data cable will allow personnel to download temperature and DO data without disturbing the equipment in the water, and you state that data will be downloaded daily each morning.

For quality assurance and quality control (QAQC) purposes, you state that twice a week you will use a handheld monitoring equipment to collect instantaneous DO and temperature data, near the locations of the installed water quality monitoring equipment. Should there be a discrepancy between the data collected by the handheld and the installed equipment, you state that you will recover, recalibrate, and redeploy the installed equipment. When the DO monitoring period ends each September, you propose to then install equipment used to measure temperature only. These data loggers will be installed in approximately the same location of each tailrace as described above, and data will be downloaded on a biweekly basis.

In order to obtain a more complete understanding of the water quality dynamics related to storage and discharge at your projects, you have proposed enhancements to the upstream water quality monitoring program described in your 1999 plan and 2001 data report. The 1999 plan states that you would obtain water quality just upstream of the influence of the project reservoir if DO levels fell below criteria at that project's tailrace. In your proposal for the 2002 monitoring, you expanded on this to provide continuous upstream monitoring above the Secord project and once a month profile measurements in the Sanford and Edenville reservoirs. You now propose to perform DO and temperature profiling at each of the project reservoirs and to collect temperature data at locations upstream of the influence of the project reservoirs.

Specifically, you state that twice a week from June through September, you will use handheld monitoring equipment to collect instantaneous DO and temperature profile data at each project reservoir. During this time frame you also propose to deploy a vertical string of continuous temperature recording devices in each project reservoir. The depth profiles will be performed near the deepest pool of each reservoir, beginning in the first 0.5 meters of the reservoir column and continuing, and 1 meter depth intervals, to approximately 0.5 meter from the reservoir bottom. You state that the profile data will provide a better understanding of the water temperatures and stratification within each of the reservoirs, and that the temperature data will serve to fill data gaps from the biweekly

DO and temperature profiles. Data from the temperature loggers will be downloaded biweekly.

You propose to deploy temperature loggers upstream of the influence of each project reservoir, in approximately 3 feet of water. You state that these data loggers will also be downloaded on a biweekly basis. Further, you plan to collect instantaneous DO and temperature data at locations upstream of each project reservoir (near the location of the temperature loggers), on a biweekly basis. Both the continuous temperature loggers and the instantaneous DO and temperature monitoring at the upstream sites will be performed from June through September. You expect that the data collected here will provide a better understanding of the water quality of flows entering the reservoir.

To ensure accurate collection of data, you state that the data will be saved on an electronic storage device whenever data is retrieved from the instruments, and that data from the handheld equipment (used during QAQC checks and depth profiles) will be recorded in a notebook and later transcribed into an electronic format. Further, you propose to send all of the data to the consultant for review and inclusion in a database.

Corrective Actions

You state that the improvements to the water quality program (such as the daily download schedule and QAQC protocols) should help eliminate the possibility of the projects operating for more than a few hours with water quality deficiencies, and will enable you to respond quickly to deficient flow conditions if they do occur. If the water quality instruments show DO or temperature outside of the criteria, you propose to immediately review the data and determine the causes and appropriate corrective action. You state that the initial corrective action considered is to discharge additional flows through the spill gates, and if this is implemented you will then closely monitor water quality data to determine if the corrective action is effective. If the additional discharge flows do not correct the problem, you propose other actions such as pumping cooler waters from deeper levels in the reservoir or routing small flows through the turbines.

You have requested to postpone installation of a SCADA system at this time, stating that the enhancements made to the water quality monitoring program will assure that water quality criteria are met, and that corrective actions will be taken swiftly if needed. You state that the water quality data collected in 2013, and experience from providing any corrective actions, may show that a SCADA system would not be necessary or could provide the experience necessary to install an efficient alarm system.

Reporting

You state that all of the data will be compiled in a database and will be available to the resource agencies upon request. You propose to provide a report summarizing the

methods, data, finding, corrective actions, and proposed future operations will be prepared and submitted to the reviewing agencies within 60 days of the completion of the data collection (by November 29, 2013). In January 2014, you will also provide an addendum to the report containing temperature data obtained through the end of 2013.

Discussion and Conclusion

Your filing describes upgrades to the equipment and improvements made to your monitoring program, which should ensure a complete water quality record in the future and aid the Commission and other interested resource agencies in determining whether you are operating in compliance with the plan. Improvements to the instrumentation and data collection methods should enable you to better monitor changes in water quality and address problems quickly. We agree that installation of a SCADA system can be postponed at this time, as your improved data collection system may ensure that timely action is taken if water quality criteria are violated.

We remind you that your results are to be provided to the MDNR and FWS prior to filing the report with the Commission. Further, the report you file with the Commission should include documentation that the report was provided to the resource agencies and include any agency comments and your response to the agencies' comments. Your proposals to improve the water quality monitoring program at the four projects adequately address the concerns raised by the Commission's April 23, 2013 letter.

On March 20, 2013, you filed a letter stating that you planned to initiate water quality monitoring at the four projects from June 1 through September 30, 2013, the DO monitoring period described in the respective articles and your approved plan. We expect that your 2013 monitoring program is currently underway and anticipate receiving your report by December 31, 2013.

Thank you for your response. If you have any questions concerning this matter, please contact Holly Frank at (202) 502-6833.

Sincerely,

Thomas J. LoVullo
Chief, Aquatic Resources Branch
Division of Hydropower Administration
and Compliance